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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/474,479	12/29/1999	TSUYOSHI ODA	450101-2980.2	2297

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FROMMER LAWRENCE & HAUG
745 FIFTH AVENUE- 10TH FL.
NEW YORK, NY 10151

EXAMINER	
RAO, ANAND SHASHIKANT	
ART UNIT	**PAPER NUMBER**
2613	8

DATE MAILED: 03/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/474,479	ODA, TSUYOSHI	
	Examiner	Art Unit	
	Andy S. Rao	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *28 July 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-15* is/are allowed.

6)☒ Claim(s) *16-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's arguments with respect to claims 16-25 (amended) as filed in Paper 7 on 7/31/03 have been considered but are moot in view of the new ground(s) of rejection based on newly cited sections of the previously cited references addressing the newly added limitations.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language..
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 16-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Reininger et al., (hereinafter referred to as "Reininger").

Reininger discloses an encoding method for encoding source video data, the method comprising steps of: encoding said source video with a predetermined step size to generate first encoded data (Reininger: column 2, lines 58-63); detecting a difficulty (Reininger: column 3, lines 55-65) of the encoding process of source video data based on a bit amount of said first encoded data (Reininger: column 3, lines 40-55); deciding an optimum quantization step size (Reininger: column 5, lines 35-50), said optimum step size being varied depending on said difficulty so that said optimum quantization step size becomes smaller when said source data is more complex and said optimum quantization step size becomes larger when source video data to be encoded is more simple; and encoding said source video data by using said optimum quantization step on encoding unit basis (Reininger: column 4, lines 25-65), wherein the predetermined step size includes a fixed amount (Reininger: column 4, lines 3-6) and optimum quantization step size has a non-fixed value (Reininger: column 4, lines 10-67), as in claim 16.

Reininger discloses an encoding method for encoding source video data, the method comprising steps of: calculating a difficulty (Reininger: column 3, lines 55-65) of the source video data (Reininger: column 3, lines 40-55) wherein said difficulty indicates a complexity of a picture within said source video data (Reininger: column 9, lines 45-55); deciding an optimum quantization step size (Reininger: column 5, lines 35-50) which is varied depending on said difficulty so that said quantization step size becomes smaller when said source data is more complex and said quantization step size becomes larger when source video data to be encoded is more simple; and encoding said source video data by using said optimum quantization step

(Reininger: column 4, lines 25-65), wherein the optimum quantization step size has a non-fixed value (Reininger: column 4, lines 10-67), as in claim 17.

Reininger discloses an encoding method for encoding source video data, the method comprising steps of: encoding said source video to generate first encoded data (Reininger: column 2, lines 58-63); detecting a difficulty (Reininger: column 3, lines 55-65)) of the encoding process of source video data based on a bit amount of said first encoded data (Reininger: column 3, lines 40-55); calculating an allocated code quantity (Reininger: column 3, lines 1-25) which is varied depending on said difficulty so that said allocated code quantity is increased when said source data is more complex and said allocated code quantity is decreased when source video data to be encoded is more simple; and encoding said source video data by an optimum quantization step size based on said allocated code quantity (Reininger: column 4, lines 60-68), wherein the optimum quantization step size has a non-fixed value (Reininger: column 4, lines 10-67), as in claim 18.

Reininger discloses an encoding method for encoding source video data, the method comprising steps of: calculating a difficulty (Reininger: column 3, lines 55-65) of the source video data (Reininger: column 3, lines 40-55) wherein said difficulty indicates a complexity of a picture within said source video data (Reininger: column 9, lines 45-55); and calculating an allocated code quantity (Reininger: column 3, lines 1-25) which is varied depending on said difficulty so that said allocated code quantity is increased when said source data is more complex and said allocated code quantity is decreased when source video data to be encoded is more simple; and encoding said source video data by using said allocated code quantity (Reininger: column 4, lines 60-68), as in claim 19.

Reininger discloses an encoding method for encoding source video data, the method comprising steps of: detecting motion vector of a macro block of said source video data (Reininger: column 6, lines 40-45); encoding said macro block of said source video data by using a predetermined step size (Reininger: column 2, lines 58-63) and said detected motion vector to generate first encoded data (Reininger: column 8, lines 20-30); detecting a difficulty (Reininger: column 3, lines 55-65) of the encoding process of source video data based on a bit amount of said first encoded data (Reininger: column 3, lines 40-55); deciding an optimum quantization step size (Reininger: column 5, lines 35-50), said optimum quantization step being varied depending on said difficulty so that said quantization step size becomes smaller when said source data is more complex and said quantization step size becomes larger when source video data to be encoded is more simple; and encoding said source macro block of said source video by using said optimum quantization step and said detected motion vector (Reininger: column 4, lines 25-65), wherein the predetermined step size includes a fixed amount (Reininger: column 4, lines 3-6) and optimum quantization step size has a non-fixed value (Reininger: column 4, lines 10-67), as in claim 20.

Reininger discloses an encoding method for encoding source video data, the method comprising steps of: selecting a predictive mode of a macro block of said source video (Reininger: column 8, lines 20-30); encoding said macro block of said source video data by using said selected predictive mode to generate first encoded data (Reininger: column 8, lines 20-30); detecting a difficulty (Reininger: column 3, lines 55-65) of the encoding process of source video data based on a bit amount of said first encoded data (Reininger: column 3, lines 40-55);

depending on said difficulty so that said quantization step size becomes smaller when said source data is more complex and said quantization step size becomes larger when source video data to be encoded is more simple; and encoding said source macro block of said source video by using said optimum quantization step and said selected predictive mode (Reininger: column 4, lines 25-65), wherein the predetermined step size includes a fixed amount (Reininger: column 4, lines 3-6) and optimum quantization step size has a non-fixed value (Reininger: column 4, lines 10-67), as in claim 21.

Reininger discloses an encoding apparatus for encoding source video data, the apparatus comprising steps of: means for detecting motion vector of a macro block of said source video data (Reininger: column 6, lines 40-45); first encoding means for encoding said macro block of said source video data by using a predetermined step size (Reininger: column 2, lines 58-63) and said detected motion vector to generate first encoded data (Reininger: column 8, lines 20-30); means for detecting a difficulty (Reininger: column 3, lines 55-65) of the encoding process of source video data based on a bit amount of said first encoded data (Reininger: column 3, lines 40-55); means for deciding an optimum quantization step size (Reininger: column 5, lines 35-50), said optimum quantization step size depending on said difficulty so that said optimum quantization step size becomes smaller when said source data is more complex and said optimum quantization step size becomes larger when source video data to be encoded is more simple; second encoding means for encoding said source macro block of said source video by using said optimum quantization step and said detected motion vector (Reininger: column 4, lines 25-65), wherein the predetermined step size includes a fixed amount (Reininger: column 4, lines 3-6)

and optimum quantization step size has a non-fixed value (Reininger: column 4, lines 10-67), as in claim 22.

Reininger discloses an encoding apparatus for encoding source video data, the apparatus comprising: means for selecting a predictive mode of a macro block of said source video (Reininger: column 8, lines 20-30); first means for encoding said macro block of said source video data by using a predetermined step size (Reininger: column 2, lines 58-63) and said selected predictive mode to generate first encoded data (Reininger: column 8, lines 20-30); means for detecting a difficulty (Reininger: column 3, lines 55-65) of the encoding process of source video data based on a bit amount of said first encoded data (Reininger: column 3, lines 40-55); means for deciding an optimum quantization step size (Reininger: column 5, lines 35-50), said optimum quantization step size being varied depending on said difficulty so that said optimum quantization step size becomes smaller when said source data is more complex and said optimum quantization step size becomes larger when source video data to be encoded is more simple; and second encoding means for encoding said source macro block of said source video by using said optimum quantization step and said selected predictive mode (Reininger: column 4, lines 25-65), wherein the predetermined step size includes a fixed amount (Reininger: column 4, lines 3-6) and optimum quantization step size has a non-fixed value (Reininger: column 4, lines 10-67), as in claim 23.

Reininger discloses an encoding apparatus for encoding source video data, the apparatus comprising: first means for encoding said macro block of said source video data by using a predetermined step size (Reininger: column 2, lines 58-63) and said selected predictive mode to generate first encoded data (Reininger: column 8, lines 20-30); second encoding means for

encoding said source based on a supplied quantization step size to generate second encoded data (Reininger: column 4, lines 1-24); control means for detecting a difficulty (Reininger: column 3, lines 55-65) of the encoding process in said first encoding means (Reininger: column 3, lines 40-55), and for deciding said quantization step size (Reininger: column 5, lines 35-50),said optimum quantization step size being varied depending on said difficulty so that said quantization step size becomes smaller when said source data is more complex and said quantization step size becomes larger when source video data to be encoded is more simple (Reininger: column 4, lines 25-65), and said quantization step being dependent on a remaining capacity of said transmitting buffer so as to suppress overflow and underflow in said transmitting buffer (Reininger: column 6, lines 25-35), wherein the predetermined step size includes a fixed amount (Reininger: column 4, lines 3-6) and optimum quantization step size has a non-fixed value (Reininger: column 4, lines 10-67), as in claim 24.

Reininger discloses an encoding apparatus for encoding source video data, the apparatus comprising: encoding means for encoding said source based on a supplied quantization step size to generate an encoded stream (Reininger: column 4, lines 1-24); control means for detecting a difficulty (Reininger: column 3, lines 55-65) of said source video (Reininger: column 3, lines 40-55), wherein said difficulty indicates a complexity of a picture within said source video data (Reininger: column 9, lines 45-55) and for deciding said quantization step size (Reininger: column 5, lines 35-50) which is varied depending on said difficulty so that said quantization step size becomes smaller when said source data is more complex and said quantization step size becomes larger when source video data to be encoded is more simple (Reininger: column 4, lines 25-65), and said quantization step which is varied depending on a remaining capacity of said

transmitting buffer so as to suppress overflow and underflow in said transmitting buffer (Reininger: column 6, lines 25-35), wherein the optimum quantization step size has a non-fixed value (Reininger: column 4, lines 10-67), as in claim 25.

Allowable Subject Matter

4. Claims 1-15 are allowed.

Independent claims 1-7, 11, and 15 are now directed towards using a encoding difficulty parameter, *derived from I-frame and P(forward) bit data only*, for coding bit allocation in motion compensated coding (I,P,B), wherein the coding selection occurs according to the generated encoding difficulty parameter. This encoding difficulty parameter as recited in the claims now distinguishes applicant's coding process over the Reininger disclosure which takes into account difficulty coding parameters for all three modes (I,P,B), for controlling quantization. Dependent claims 8-10 and 12-14 are allowable for the reasons discussed above. Accordingly, if finally rejected claims 16-25 are canceled, the application would be placed in a condition for allowance.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (703)-305-4813. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris S. Kelley can be reached on (703)-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andy S. Rao
Primary Examiner
Art Unit 2613

ANDY RAO
PRIMARY EXAMINER

asr